Chapter 2
Global E-Business and Collaboration

Student Learning Objectives

2-1 What are business processes? How are they related to information systems?

2-2 How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance?

2-3 Why are systems for collaboration and social business so important and what technologies do they use?

2-4 What is the role of the information systems function in a business?

2-5 How will MIS help my career?

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Key Terms

The following alphabetical list identifies the key terms discussed in this chapter. The page number for each key term is provided.

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Teaching Suggestions

The opening vignette, "Enterprise Social Networking Helps Sanofi Pasteur Innovate and Improve Quality," provides an outstanding example of how the company embraced social business tools to ensure its success and solidify its commitment to improving the health of the world's population. These technologies are the very same ones every business needs to succeed.

The large, centralized firm with a traditional hierarchical culture made it difficult for employees to experiment and innovate on their own. After the firm adopted social networking tools, ideas for improvement could come from anywhere in the firm and could be shared by all employees.

Yammer, Microsoft's enterprise social networking platform for internal business uses, enables employees to create groups to collaborate on projects and share and edit documents. It also includes a news feed that allows employees to easily learn what's happening company-wide.

By using Yammer, employees share updates, ask for feedback, and connect volunteers around improvement initiatives. One project resulted in a 60 percent simplification of a key quality process that saved the company thousands of euros and reduced overall end-to-end process time.

The social networking platforms adopted by the company creates a more collegial, personal culture that allows people to feel more comfortable about making suggestions for improvements and working with other groups across the globe. Yammer-powered communities raised awareness of health, safety, and attention to detail issues and helped reduce human errors by 91 percent.

Section 2-1, "What are business processes? How are they related to information systems" Table 2-1 may help students understand that every business, large and small, uses the same basic business processes. Referring to this table may help as you examine information needs for each functional area. You could have students select a business with which they are familiar and identify some of the business processes involved in each of the basic functional areas.

Another good classroom exercise is to use Figure 2-1 to compare how the order fulfillment process can be accomplished sequentially, as the figure shows, versus simultaneously as a new information system would allow.

Section 2-2, "How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance" This section focuses on how information systems serve various management levels in

companies. The ultimate goal is for students to realize that one system helps serve other systems and, working together, all the systems serve the entire organization.

Type of System	Information Inputs	Information Outputs	Users
Transaction Processing Systems (TPS)	Transactions; daily events	Detailed reports; lists; summaries	Operations personnel; first-line supervisors
Management Information Systems (MIS)	Summary transaction data; high-volume data; simple models	Summary and exception reports	Middle managers
Decision Support Systems (DSS)	Optimized for data analysis, analytic models and data analysis tools	Interactive; simulations; analysis	Professionals, staff managers
Executive Support Systems (ESS)	Aggregate data; external, internal	Projections; responses to queries	Senior managers

It's likely students' main encounter will be with TPS systems when they first begin their careers. Stress the importance of accurate data at the TPS level because it serves as the initial source for the other systems.

Typically, DSS and ESS systems will be the least familiar. Students may better understand them if you ask these types of questions: Why do national retail chains open stores in certain locations and not others? How can a retail chain determine which type of clothing to stock at different geographic locations?

Most importantly, students need to understand that each type of information system supports the different kinds of decisions made at each managerial level.

It's quite possible students feel overwhelmed by all the different kinds of information systems described in the first part of this section. "*Systems for Linking the Enterprise"* helps you tie together all of the information systems into a cohesive package and shows how data and information can flow seamlessly through an organization.

Enterprise systems: Central to this section is the need to coordinate activities, decisions, and knowledge across the firm's different levels, functions, and business units. Enterprise systems use a single central data repository in order to supply all users with a consolidated view of employees, customers, suppliers, and vendors. The key to effectively using enterprise systems is to eliminate redundancy and duplication, not just in the information systems but also in business processes.

Supply chain management systems: Students should understand the importance of a business managing its relationships with suppliers through a free-flowing exchange of information. The concept may seem foreign to those students who think a company is a closed entity and shouldn't share data or information with anyone outside the

organization. A review of a typical supply chain may be helpful: sourcing, producing, and delivering goods and services. It may also be helpful to engage the students in an exercise that lists all the entities involved in producing and delivering goods and services.

Customer relationship management systems: Ask students how many times they've quit doing business with a company because of poor customer service. Ask them how many times they've had to supply a business with the same information simply because they talked to a different department in the company. Discuss how important it is for every functional area in a business to have the same consolidated view of its customers to avoid these kinds of problems.

Knowledge management systems: It is likely that few, if any, students have had any experience with these systems. Point out that businesses are beginning to realize how much expertise and experience is locked away in employees' heads and that it's imperative to find a way to capture that information. Moreover, it's important that businesses find a way to make the expertise and experience available to a wide range of users. On the other hand, students should understand that employees can be reluctant to share their knowledge with systems developers for fear they may lose their jobs to a new system! Also, employees may not be able to precisely describe how they do what they do on the job.

Intranets and extranets: As Internet-based technologies continue to expand the basic platforms for disseminating information, smaller businesses that cannot afford to implement enterprise applications can turn to intranets and extranets. Your difficulty will be getting students to understand the difference between the two since they operate basically the same way. Intranets are limited to internal users; extranets are available to external users as well as internal users. Both are an inexpensive way to quickly disseminate information and data across functional lines and organizational boundaries.

E-business, e-commerce, and e-government: Have students give examples of their own experiences with of each of these. Students are most often confused between e-business and e-commerce. Stress that e-business refers to the use of digital technology and the Internet to execute major business processes while e-commerce is more narrowly centered on the buying and selling of goods and services over the Internet.

Interactive Session: Organizations: Data Changes How NFL Teams Play the Game and How Fans See It

Case Study Questions

1. What kind of systems are illustrated in the case study? Where do they obtain their data? What do they do with the data? Describe some of the inputs and outputs of these systems.

The NFL uses radio frequency identification (RFID) tags beneath players' shoulder pads to gather information for transaction processing systems that record data including each player's speed, direction, location on the field, how far they ran on a play, and how long

they were sprinting, jogging, or walking. The RFID tags also collect data about a team's formation and how players' speed or acceleration impacts their on-field performance.

The data collected are also used in decision support systems that provide the NFL and each team analytics including charts, graphs, and tabular data to give teams more insight into player performance and overall team performance.

2.What business functions do these systems support? Explain your answer.

The data that are collected are pushed out to remote cloud computers run by Amazon Web Services for the NFL. From the cloud the data are shared with fans, broadcasters and the teams. Microsoft gathers and displays the data to fans using NFL.com, the NFL's social media outlet, and the NFL app on Windows 10 and the Xbox One. The data are also transmitted to giant display screens in the arena to show fans during the game.

The various ways the data are provided to fans gives them a richer, more involved experience and potentially increases the number of fans for each team and the NFL as a whole. That increases revenues for the League and teams.

3. How do the data about teams and players captured by the NFL help NFL teams and the NFL itself make better decisions? Give examples of two decisions that were improved by the systems described in this case.

The data can be used to determine new or improve existing strategies for teams and players. That can help them become more competitive and increase their chances for a winning season and competing in lucrative play-off games which increases revenues for the teams, players, and League overall.

More analytics could identify when a player's performance is likely to flag late in a game and provide information to coaches and trainers that a player should be removed before a serious injury occurs. The data can also be used to improve training between games.

4. How did using data help the NFL and its teams improve the way they run their business?

The data have multiple uses. NFL teams use them to evaluate player and team performance and to analyze tactics, such as whether it might be better to press forward or to punt in a particular fourth-down situation. Data transmitted to broadcasters, to stadium screens, to the NFL web site, and to the NextGen Stats feature of Microsoft's Xbox One NFL app help create a deeper fan experience that gets fans more involved in the game.

Section 2-3 "Why are systems for collaboration and social business so important and what technologies do they use" Students have probably used most of these systems without even realizing their business value. Your task is to relate these increasingly common technologies to business processes and needs. Discuss how they can use cell phones, instant messaging, social networking sites, and wikis in a business setting to

communicate, collaborate, and share ideas with team members, business partners, customers, and suppliers.

One exercise you can use to reinforce the usefulness of team collaboration is to have small student groups explore social networking sites or Twitter to see how many postings by businesses they can find. For instance, Twitter has tweets for Free Honey Bunches of Oats at Walmart and a tweet for an article about General Electric's solar technology. Businesses also make use of the popular YouTube.com to post videos of their products. This exercise will help demonstrate how businesses must constantly adapt their marketing strategies to reach customers. You can also generate a discussion about students' experience on these kinds of sites in relation to business uses and ask them to relate how effective these new methods of engaging customers are.

Table 2-3 emphasizes the benefits of collaboration while Figure 2-7 highlights the necessity of having the appropriate organization structure and culture, along with the right technology, to successfully use collaboration in an organization. Discuss how the absence of even one of these three can hinder or prevent collaboration. Ask students to draw on their own experiences to compare and contrast firms with a collaborative culture to those without.

Many times people and businesses decide which collaborative tools to use based on which ones they are most familiar with rather than which are the most appropriate tool for the task at hand.

You can have student teams evaluate one or more collaborative programs for an organization to which they belong like a sports team, sorority/fraternity, workplace, or even their use in your classroom. Have them use the time/space matrix in Figure 2-8 and the information in the section "*Checklist for Managers: Evaluating and Selecting Collaboration Software Tools*" to help select the best tool.

Have students explore the use of business wikis first-hand by visiting SAP's Enterprise Solution Wiki at http://wiki.sdn.sap.com/wiki/display/ESpackages/ES+Wiki+Home, or IBM's Notes and Domino Wiki at http://www-10.lotus.com/ldd/dominowiki.nsf/. Both wikis will help demonstrate the usefulness of having so much knowledge at your fingertips plus the ease with which companies are gathering, storing, and disseminating knowledge.

Interactive Session: Technology: Videoconferencing: Something for Everyone

Case Study Questions

1. **Compare the capabilities of Cisco's IX5000 telepresence and the Logitech SmartDock systems. How do they promote collaboration and innovation?**

The current generation of telepresence platforms provide much more than video collaboration, with the ability to coordinate multiple rich data streams that integrate digital information from mobile, desktop, and video, create a collaborative environment,

and move the information to where managers and professionals are making decisions.

Cisco's IX5000 immersive telepresence system offers leading-edge telepresence and is much more affordable and easier to use than in the past even though it can cost between $299,000 and $339,000. It is sleekly sculpted, with three 4K ultra-high-definition cameras clustered discreetly above three 70-inch LCD screens. The cameras provide crisp, high-definition video. Theater-quality sound emanates from 18 custom speakers and one powerful subwoofer, creating a high-quality lifelike collaboration experience for 8 to 18 people. Video and other content can move across any of the screens.

The system creates a more natural setting than previous systems because the camera and graphic processors are able to capture the whole room in fine detail so you can stand up and move around or go to the whiteboard. Using the 4K cameras, the IX5000 creates an image four times larger than what's actually needed to fill the system's three screens. The images can be cropped down to show participants seated behind their tables, but when someone stands up, the crop is removed to show both standing and sitting participants.

On the lower-cost end, Logitech's SmartDock provides an audio and video videoconferencing and collaboration system to hold meetings, interview job candidates, and handle other tasks. SmartDock is a user-friendly touch-screen control console to launch and manage audio and video calls in any meeting space, large or small. It has an embedded Microsoft Surface Pro tablet running a special version of Skype for Business, called Skype Room System, and works with Office for Business productivity tools and qualified devices, including Logitech ConferenceCams. With Logitech SmartDock, people can start meetings with a single touch, then instantly project to the display in the room and share with remote participants via their Skype for Business clients on a smartphone or laptop.

Participants can share content in a meeting and view and edit documents in real time. An embedded motion sensor activates the system when anyone is in the room. Prices range from $1,999 to $3,999, depending on the size of the meeting room and the need for webcams.

2. Why would a company like Produban want to invest in a high-end telepresence system such as Cisco's IX5000? How is videoconferencing technology and telepresence related to Produban's business model and business strategy?

With more than 5,500 employees working in nine different countries, Produban services more than 120 companies in areas such as data center design and operation, IT infrastructure design and operation as a service, IT platform design and operation as a service, technology risk management and business continuity, and management of end user computing mobility and self-service management. The company is dedicated to technology innovation and continuous improvement.

By using Cisco's IX5000 system, Produban brings people from all over the world together to make better decisions faster and more efficiently. With 50 percent less power

usage, 50 percent less data transmission capacity, and half the installation time of earlier systems (only eight hours), the IX5000 reduces TCO by 30 percent over three years.

Because Produban's business model and strategy is to maximize technology innovation and continuous improvement for other companies, using the latest telepresence technology for its own inner workings fits.

3. Why would King County, Washington want to implement the Logitech SmartDock system? What business benefits did it obtain from using this technology?

In the past, King County had used a variety of systems and technologies for videoconferencing and collaboration. They were time consuming for the county's IT staff to administer and had limited capabilities and features. Teams couldn't connect remotely and establish multipoint connections with smartphones and tablets.

King County's IT staff might spend 20 minutes or more setting up a videoconferencing system, which often relied on legacy technology from multiple vendors along with computer monitors and outdated VGA-quality TV sets. King County received multiple requests to use these systems daily in its 30 on-site conference rooms and needed to standardize the technology and make it more supportive of collaboration. The King County IT staff was able to handle installation and implementation of the Logitech SmartDock system on its own. Employees are using the videoconferencing and collaboration systems without IT involvement. Being able to share presentations and co-edit documents in Word, Excel, and other formats has made working much more collaborative.

Section 2-4. "What is the role of the information systems function in a business?" If possible, arrange a session with the school's information systems department to allow students to see first-hand how such a center works and who is responsible for running the systems. Have the IT staff and students participate in a Question and Answer forum about how typical processes are handled. Many students have a better appreciation of how these complex centers work when they actually see one in operation rather than just reading about it. Stress to students that in all but the smallest of firms these systems are critical to operational efficiency and sheer survival in a very competitive marketplace.

Most importantly, students should understand that the IT staff is responsible for the well-being of all users in an organization. Users and the IT staff are teammates not polarizing opposites.

Section 2-5, "How will MIS help my career?" addresses how the chapter's elements and information can help in securing a good job as a sales support specialist. These types of jobs are becoming more popular as information technology becomes more important in the workplace.

Review Questions

2-1 What are business processes? How are they related to information systems?

Define business processes and describe the role they play in organizations.

A business process is a logically related set of activities that define how specific business tasks are performed. Business processes are the ways in which organizations coordinate and organize work activities, information, and knowledge to produce their valuable products or services.

How well a business performs depends on how well its business processes are designed and coordinated. Well-designed business processes can be a source of competitive strength for a company if it can use the processes to innovate or perform better than its rivals. Conversely, poorly designed or executed business processes can be a liability if they are based on outdated ways of working and impede responsiveness or efficiency. (Learning Objective 2-1: What are business processes? How are they related to information systems? AACSB: Application of knowledge.)

Describe the relationship between information systems and business processes.

Information systems automate manual business processes and make an organization more efficient. Data and information are available to a wider range of decision-makers more quickly when information systems are used to change the flow of information. Tasks can be performed simultaneously rather than sequentially, speeding up the completion of business processes. Information systems can also drive new business models that perhaps wouldn't be possible without the technology. (Learning Objective 2-1: What are business processes? How are they related to information systems? AACSB: Application of knowledge.)

2-2 How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance?

Describe the characteristics of transaction processing systems (TPS) and the roles they play in a business.

Transaction processing systems (TPS) are computerized systems that perform and record daily routine transactions necessary in conducting business; they serve the organization's operational level. The principal purpose of systems at this level is to answer routine questions and to track the flow of transactions through the organization.

- At the operational level, tasks, resources, and goals are predefined and highly structured.
- Managers need TPS to monitor the status of internal operations and the firm's relationship with its external environment.
- TPS are major producers of information for other types of systems.

- Transaction processing systems are often so central to a business that TPS failure for a few hours can lead to a firm's demise and perhaps that of other firms linked to it.

(Learning Objective 2-2: How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance? AACSB: Application of knowledge.)

Describe the characteristics of management information systems (MIS) and explain how MIS differ from TPS and from DSS.

Middle management needs systems to help with monitoring, controlling, decision-making, and administrative activities.

- MIS provide middle managers with reports on the organization's current performance. This information is used to monitor and control the business and predict future performance.
- MIS summarize and report the company's basic operations using data supplied by TPSs. The basic transaction data from TPS are compressed and usually presented in reports that are produced on a regular schedule.
- MIS serve managers primarily interested in weekly, monthly, and yearly results, although some MIS enable managers to drill down to see daily or hourly data if required.
- MIS generally provide answers to routine questions that have been specified in advance and have a predefined procedure for answering them.
- MIS systems generally are not flexible and have little analytical capability.
- Most MIS use simple routines, such as summaries and comparisons, as opposed to sophisticated mathematical models or statistical techniques.

MIS differs from TPS in that MIS deals with summarized and compressed data from the TPS.

Although MIS have an internal orientation, DSS will often use data from external sources, as well as data from TPS and MIS. DSS supports "what-if" analyses rather than providing the long-term structured analysis inherent in MIS systems. MIS are generally not flexible and provide little analytical capabilities. In contrast, DSS are designed for analytical purposes and are flexible. (Learning Objective 2-2: How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance? AACSB: Application of knowledge.)

Describe the characteristics of decision-support systems (DSS) and how they benefit businesses.

Decision-support systems (DSS) support nonroutine decision-making for middle managers.

- DSS provide sophisticated analytical models and data analysis tools to support semistructured and unstructured decision-making activities.

- DSS use data from TPS, MIS, and external sources, in condensed form, allowing decision makers to perform "what-if" analysis.
- DSS focus on problems that are unique and rapidly changing; procedures for arriving at a solution may not be fully predefined.
- DSS are designed so that users can work with them directly; these systems include interactive, user-friendly software.

(Learning Objective 2-2: How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance? AACSB: Application of knowledge.)

Describe the characteristics of executive support systems (ESS) and explain how these systems differ from DSS.

Executive support systems (ESS) help senior managers address strategic issues and long-term trends, both in the firm and in the external environment.

- ESS address nonroutine decisions requiring judgment, evaluation, and insight because there is no agreed-on procedure for arriving at a solution.
- ESS provide a generalized computing and communications capacity that can be applied to a changing array of problems.
- ESS are designed to incorporate data about external events, such as new tax laws or competitors, but they also draw summarized information from internal MIS and DSS.
- ESS are designed for ease-of-use and rely heavily on graphical presentations of data.

(Learning Objective 2-2: How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance? AACSB: Application of knowledge.)

Explain how enterprise applications improve organizational performance.

An organization operates in an ever-increasing competitive and global environment. The successful organization focuses on the efficient execution of its processes, customer service, and speed to market. Enterprise applications provide an organization with a consolidated view of its operations across different functions, levels, and business units. Enterprise applications allow an organization to efficiently exchange information among its functional areas, business units, suppliers, and customers. (Learning Objective 2-2: How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance? AACSB: Analytical thinking.)

Define enterprise systems, supply chain management systems, customer relationship management systems, and knowledge management systems and describe their business benefits.

Enterprise systems integrate the key business processes of an organization into a single central data repository. This makes it possible for information that was

previously fragmented in different systems to be shared across the firm and for different parts of the business to work more closely together.

Business benefits include:

- Information flows seamlessly throughout an organization, improving coordination, efficiency, and decision making.
- Gives companies the flexibility to respond rapidly to customer requests while producing and stocking only that inventory necessary to fulfill existing orders.
- Increases customer satisfaction by improving product shipments, minimizing costs, and improving a firm's performance.
- Improves decision making by improving the quality of information for all levels of management. That leads to better analyses of overall business performance, more accurate sales and production forecasts, and higher profitability.

In short, **supply chain management (SCM) systems** help businesses better manage relationships with their suppliers. The objective of SCM is to get the right number of products from the companies' source to their point of consumption in the least amount of time and with the lowest cost. SCM provide information to help suppliers, purchasing firms, distributors, and logistics companies share information about orders, production, inventory levels, and delivery of products and services so that they can source, produce, and deliver goods and services efficiently. SCM helps organizations achieve great efficiencies by automating parts of these processes or by helping organizations rethink and streamline these processes. SCM is important to a business because through its efficiency it can coordinate, schedule, and control the delivery of products and services to customers.

Business benefits include:

- Decide when and what to produce, store, and move
- Rapidly communicate orders
- Track the status of orders
- Check inventory availability and monitor inventory levels
- Reduce inventory, transportation, and warehousing costs
- Track shipments
- Plan production based on actual customer demand
- Rapidly communicate changes in product design

Customer relationship management (CRM) systems enable a business to better manage its relationships with existing and potential customers. With the growth of the web, potential customers can easily comparison shop for retail and wholesale goods and even raw materials, so treating customers better has become very important.

Business benefits include:

- CRM systems provide information to coordinate all the business processes that deal with customers in sales, marketing, and service to optimize revenue, customer satisfaction, and customer retention. This information helps firms

identify, attract, and retain the most profitable customers; provide better service to existing customers; and increase sales.

- CRM systems consolidate customer data from multiple sources and provide analytical tools for answering questions such as: What is the value of a particular customer to the firm over his/her lifetime?
- CRM tools integrate a business's customer-related processes and consolidate customer information from multiple communication channels, giving the customer a consolidated view of the company.
- Detailed and accurate knowledge of customers and their preferences helps firms increase the effectiveness of their marketing campaigns and provide higher-quality customer service and support.

Knowledge management systems (KMS) enable organizations to better manage processes for capturing and applying knowledge and expertise. These systems collect all relevant knowledge and experience in the firm, and make it available wherever and whenever it is needed to improve business processes and management decisions. They also link the firm to external sources of knowledge.

Business benefits include:

- KMS support processes for acquiring, storing, distributing, and applying knowledge, as well as processes for creating new knowledge and integrating it into the organization.
- KMS include enterprise-wide systems for managing and distributing documents, graphics, and other digital knowledge objects; systems for creating corporate knowledge directories of employees with special areas of expertise; office systems for distributing knowledge and information; and knowledge work systems to facilitate knowledge creation.
- KMS use intelligent techniques that codify knowledge and experience for use by other members of the organization and tools for knowledge discovery that recognize patterns and important relationships in large pools of data.

(Learning Objective 2-2: How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance? AACSB: Application of knowledge.)

Explain how intranets and extranets help firms integrate information and business processes.

Because intranets and extranets share the same technology and software platforms as the Internet, they are easy and inexpensive ways for companies to increase integration and expedite the flow of information within the company (intranets alone) and with customers and suppliers (extranets). They provide ways to distribute information and store corporate policies, programs, and data. Both types of nets can be customized by users and provide a single point of access to information from several different systems. Businesses can connect the nets to transaction processing systems easily and quickly. Interfaces between the nets and TPS, MIS, DSS, and ESS systems provide input and output for users. (Learning Objective 2-2: How do systems serve the

different management groups in a business and how do systems that link the enterprise improve organizational performance? AACSB: Analytical thinking.)

2-3 Why are systems for collaboration and social business so important and what technologies do they use?

Define collaboration and social business and explain why they have become so important in business today.

Collaboration is working with others to achieve shared and explicit goals. It focuses on task or mission accomplishment and usually takes place in a business, or other organizations, and between businesses. Collaboration can be short-lived or longer term, depending on the nature of the task and the relationship among participants. It can be one-to-one or many-to-many.

Social business is part of an organization's business structure for getting things done in a new collaborative way. It uses social networking platforms to connect employees, customers, and suppliers. The goal of social business is to deepen interactions with groups inside and outside a company to expedite and enhance information-sharing, innovation, and decision-making.

Collaboration and social business are important because of the:

- *Changing nature of work.* More jobs are becoming "interaction" jobs. These kinds of jobs require face-to-face interaction with other employees, managers, vendors, and customers. They require systems that allow the interaction workers to communicate, collaborate and share ideas.
- *Growth of professional work.* Professional jobs in the service sector require close coordination and collaboration.
- *Changing organization of the firm*. Work is no longer organized in a hierarchical fashion as much as it is now organized into groups and teams who are expected to develop their own methods for accomplishing tasks.
- *Changing scope of the firm.* Work is more geographically separated than before.
- *Emphasis on innovation.* Innovation stems more from groups and teams than it does from a single individual.
- *Changing culture of work and business*. Diverse teams produce better outputs, faster, than individuals working on their own.

(Learning Objective 2-3: Why are systems for collaboration and social business so important and what technologies do they use? AACSB: Application of knowledge.)

List and describe the business benefits of collaboration and social business.

The general belief is that the more a business firm is collaborative in nature, the more successful it will be and that collaboration within and among firms is more essential

than in the past. The overall economic benefits of collaboration and social business are significant.

The business benefits of collaboration and social business are listed in Table 2-3:

- *Productivity:* people working together accomplish tasks faster, with fewer errors, than those working alone.
- *Quality:* people can communicate errors and correct them faster when working together versus working alone.
- *Innovation:* people working in groups can generate more innovative ideas than if they were working alone.
- *Customer service:* people working in teams can solve customer complaints and issues faster and more effectively versus working in isolation.
- *Financial performance:* collaborative firms have superior sales, sales growth, and financial performance.

(Learning Objective 2-3: Why are systems for collaboration and social business so important and what technologies do they use? AACSB: Application of knowledge.)

Describe a supportive organizational culture and business processes for collaboration.

Historically, organizations were built on hierarchies which did not allow much decision making, planning, and organizing at lower levels of management or by employees. Communications were generally vertical through management levels rather than horizontal between groups of employees.

A collaborative culture relies on teams of employees to implement and achieve results for goals set by senior managers. Policies, products, designs, processes, and systems are much more dependent on teams at all levels of the organization to devise, to create, and to build. Rather than employees being rewarded for individual results, they are rewarded based on their performance in a team. The function of middle managers in a collaborative business culture is to build the teams, coordinate their work, and monitor their performance. In a collaborative culture, senior management establishes collaboration and teamwork as vital to the organization, and it actually implements collaboration for the senior ranks of the business as well. (Learning Objective 2-3: Why are systems for collaboration and social business so important and what technologies do they use? AACSB: Application of knowledge.)

List and describe the various types of collaboration and social business tools.

Some of the more common enterprise-wide information systems that businesses can use to support interaction jobs include:

- Internet-based collaboration environments like IBM Notes and WebEx provide online storage space for documents, team communications (separated from email), calendars, and audio-visual tools members can use to meet face-to-face.

- Email and Instant Messaging (IM) are reliable methods for communicating whenever and wherever around the globe.
- Cell phones and wireless handhelds give professionals and other employees an easy way to talk with one another, with customers and vendors, and with managers. These devices have grown exponentially in sheer numbers and in applications available.
- Social networking is no longer just "social." Businesses are realizing the value of providing easy ways for interaction workers to share ideas and collaborate with each other.
- Wikis are ideal tools for storing and sharing company knowledge and insights. They are often easier to use and cheaper than more proprietary knowledge management systems. They also provide a more dynamic and current repository of knowledge than other systems.
- Virtual worlds house online meetings, training sessions, and "lounges" where real-world people meet, interact, and exchange ideas.
- Google tools, cyberlockers, and cloud collaboration allow users to quickly create online group-editable web sites that include calendars, text, spreadsheets, and videos for private, group, or public viewing and editing.
- Microsoft SharePoint software makes it possible for employees to share their Office documents and collaborate on projects using Office documents as the foundation.

(Learning Objective 2-3: Why are systems for collaboration and social business so important and what technologies do they use? AACSB: Application of knowledge.)

2-4 What is the role of the information systems function in a business?

Describe how the information systems function supports a business.

The information systems department is the formal organizational unit responsible for information technology services. The information systems department is responsible for maintaining the hardware, software, data storage, and networks that comprise the firm's IT infrastructure. (Learning Objective 2-4: What is the role of the information systems function in a business? AACSB: Application of knowledge.)

Compare the roles played by programmers, systems analysts, information systems managers, the chief information officer (CIO), chief security officer (CSO), chief data officer (CDO) and chief knowledge officer (CKO).

- Programmers are highly trained technical specialists who write the software instructions for computers.
- Systems analysts constitute the principal liaisons between the information systems groups and the rest of the organization. The systems analyst's job is to translate business problems and requirements into information requirements and systems.

- Information systems managers lead teams of programmers and analysts, project managers, physical facility managers, telecommunications mangers, or database specialists.
- Chief information officer is a senior manager who oversees the use of information technology in the firm.
- Chief security officer is responsible for information systems security in the firm and has the principle responsibility for enforcing the firm's information security policy. The CSO is responsible for educating and training users and IS specialists about security, keeping management aware of security threats and breakdowns, and maintaining the tools and policies chosen to implement security.
- Chief data officer is responsible for enterprise-wide governance and utilization of information to maximize the value the organization can realize from its data. The CDO ensures the firm is collecting appropriate data, analyzing it appropriately, and using the results to support business decisions.
- Chief knowledge officer helps design programs and systems to find new sources of knowledge or to make better use of existing knowledge in organizational and management processes.

(Learning Objective 2-4: What is the role of the information systems function in a business? AACSB: Analytical thinking, Application of knowledge.)

Discussion Questions

2-5 How could information systems be used to support the order fulfillment process illustrated in Figure 2-1? What are the most important pieces of information these systems should capture? Explain your answer.

Student answers to this question will vary.

2-6 Identify the steps that are performed in the process of selecting and checking a book out from your college library and the information that flows among these activities. Diagram the process. Are there any ways this process could be improved to improve the performance of your library or your school? Diagram the improved process.

Student answers to this question will vary.

2-7 Use the time/space collaboration and social tool matrix to classify the collaboration and social technologies used by Sanofi Pasteur.

Student answers to this question will vary.

Hands-on MIS Projects

Management Decision Problems

2-8 **Don's Lumber Company:** The price of lumber and other building materials is constantly changing. When a customer inquires about the price on pre-finished wood flooring, sales representatives consult a manual price sheet and then call the supplier for the most recent price. The supplier in turn uses a manual price sheet, which has been updated each day. Often the supplier must call back Don's sales reps because the company does not have the newest pricing information immediately on hand. Assess the business impact of this situation, describe how this process could be improved with information technology, and identify the decisions that would have to be made to implement a solution. Who would make those decisions?

Manually updating price sheets leads to slower sales processes, pricing errors if sales reps are using outdated information, and customer dissatisfaction due to delays in obtaining information. By putting the data online using an extranet and updating it as necessary, sales reps consult the most current information immediately. That leads to faster sales and more satisfied customers. Necessary decisions include how much information to make available online, who will have access to it, and how to keep the information secure. Senior management would likely make these decisions. (Learning Objective 2-1: What are business processes? How are they related to information systems? AACSB: Analytical thinking, Reflective thinking, Application of knowledge.)

2-9 Henry's Hardware: Owners do not keep automated, detailed inventory or sales records. Invoices are not maintained or tracked (other than for tax purposes). The owners use their own judgment in identifying items that need to be reordered. What is the business impact of this situation? How could information systems help Henry and Kathleen run their business? What data should these systems capture? What decisions could the systems improve?

The business impact includes lost sales, over- and under-ordering products, improper sales accounting and more costly inventory control. An information system could capture data that allows owners to maintain proper inventories, order only those products needed, and ensure proper sales accounting. Decisions on pricing, product levels, and inventory replenishment could be vastly improved based on data and not a best-guess venture. (Learning Objective 2-2: How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance? AACSB: Analytical thinking, Application of knowledge.)

Improving Decision Making: Using a Spreadsheet to Select Suppliers

Software skills: Spreadsheet date functions, data filtering, DAVERAGE functions.
Business skills: Analyzing supplier performance and pricing.

2-10 Although the format of the student's answers will vary, a suggested solution can be

found in the Microsoft Excel File named: *MIS16ch02_solutionfile.xls.*

This exercise requires some student knowledge of spreadsheet database functions. At a minimum, students should know how to sort the database by various criteria such as item description, item cost, vendor number, vendor, name, or A/P terms. Students may need to be told that A/P Terms is expressed as the number of days that the customer has to pay the vendor for a purchase. In other words, 30 designates net 30 days. The vendor that allows customers the longest amount of time to pay for an order would, of course, offer the most favorable payment terms.

Students will need to add additional columns for calculating the actual delivery time for each order and the number of days the delivery is late. The Actual Delivery Time can be calculated by subtracting the Promised Ship Date from the Arrival Date. The number of days late can be calculated by subtracting the Promised Transit Time from the Actual Delivery Time. If the number of days late is negative, it indicates that the order arrived early.

These numbers are useful when trying to determine which vendor has the best on-time delivery track record. Students can use the DAVERAGE function to determine the average delivery time for each vendor. Students can also use one of the database functions to determine the vendor with the best accounts payable terms. To determine the vendor with the lowest prices for the same item when it is supplied by multiple vendors, students can filter the database using the item description. This filtered list can then be sorted by item cost and vendor number. (Learning Objective 2-2: How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance? AACSB: Written and oral communication, Analytical thinking, Application of knowledge.)

Achieving Operational Excellence: Using Internet Software to Plan Efficient Transportation Routes

Software skills: Internet-based software
Business skills: Transportation planning

2-11 Obviously, the shortest amount of time is more cost effective than the shortest distance since there's only a difference of 27.05 miles. Saving the 27 miles will take 2 hours, 24 minutes longer. Encourage students to use the Advanced Tools option to quickly change back and forth between "shortest time" and "shortest distance." Only to show how convenient these kinds of online tools are, ask students to use a regular map and calculator to draw out the two routes. (Lots of ughs!) (Learning Objective 2-2: How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance? AACSB: Analytical thinking, Application of knowledge.)

Shortest distance: 10 hours, 11 minutes; 506.56 miles
Shortest time: 8 hours, 35 minutes; 533.61 miles

Collaboration and Teamwork Project

2-12 In MyLab MIS, you will find a Collaboration and Teamwork Project dealing with the concepts in this chapter. You will be able to use Google Drive, Google Docs, Google Sites, Google +, or other open source collaboration tools to complete the assignment.

Case Study: Should Companies Embrace Social Business?

2-13 Identify the management, organization, and technology factors affecting adoption of internal corporate social networks.

Management: Employees that are used to collaborating and doing business in more traditional ways need an incentive to use social software. Most companies are not providing that incentive: only a small number of social software users believe the technology to be necessary to their jobs. A successful social business strategy requires leadership and behavioral changes. Just sponsoring a social project is not enough—managers need to demonstrate their commitment to a more open, transparent work style.

Organization: Companies that have tried to deploy internal social networks have found that employees are used to doing business in a certain way and overcoming the organizational inertia and culture can prove difficult. Enterprise social networking systems were not at the core of how most of the surveyed companies collaborate. The social media platform that will work best depends on its specific business purpose. Firms should first identify how social initiatives will actually improve work practices for employees and managers. Most importantly, social business requires a change in thinking and in most cases, employees can't be forced to use social business apps.

Technology: Ease of use and increased job efficiency are more important than peer pressure in driving adoption of social networking technologies. Content on the networks needs to be relevant, up-to-date, and easy to access; users need to be able to connect to people who have the information they need, and that would otherwise be out of reach or difficult to reach. (Learning Objective 2-1: What are business processes? How are they related to information systems? Learning Objective 2-2: How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance?, Learning Objective 2-3: Why are systems for collaboration and social business so important and what technologies do they use?, AACSB: Analytical thinking, Application of knowledge.)

2-14 Compare the experiences implementing internal social networks of the organizations described in this case. Why were some successful? What role did management play in this process?

NASA's Goddard Space Flight Center abandoned its enterprise social network called Spacebook because no one knew how the tools would help people do their jobs better and more efficiently. It didn't focus enough on people. It didn't take into consideration the organization's culture and politics.

Covestro succeeded with its social networking journey because it made the tools more accessible, demonstrated the value of the tools in pilot projects, employed a reverse mentoring program for senior executives, and trained employee experts to spread know-how of the new social tools and approaches within the company. It also demonstrated the tools' usefulness to employees. Because of its correct approach, 50 percent of Covestro's employees are now routinely active in the company's enterprise social network.

ModCloth started piloting Yammer with a small test group and used a People Team to promote the tool. Yammer caught on quickly with employees and was soon being used by over 250 employees across four offices in the United States. Every new ModCloth employee is introduced to Yammer on his or her first day of work. Yammer helps new hires learn their coworkers' names and feel they are part of the company. Yammer has proved very useful for connecting people and ideas, saving ModCloth considerable time and money. Yammer has helped save teams from duplicating work that has already been done.

The Esquel Group is based in Hong Kong; its core business is making cotton tops for fashion brands such as Lacoste, Ralph Lauren, and Nike. It was attracted to internal social networking as a way to unite its different lines of business in various locations. Esquel chose Microsoft Yammer as its enterprise social networking tool. Esquel employees communicate in a variety of languages, so it especially appreciated Yammer's translation capabilities. Management sees many benefits in being able to "listen" to its workforce. When people post complaints on the network, management is able to find innovative solutions and new ideas. For example, workers in Esquel's garment operation posted a complaint on Yammer about having to wait in a long line to recharge their cards for purchasing meals in the company cafeteria. Four months later, the company had a solution—a kiosk that instantly transferred funds from payroll to the meal card.

Ideas posted on Yammer were used to improve Esquel's quality control process. Instead of using measuring tape to ensure that sleeves and collars matched specifications, an employee in the quality control department used Yammer to float the idea of an electric ruler. The concept was refined through more Yammer discussion. Instead of taking measurements and writing numbers down, staff can capture measurements faster and more accurately electronically.

(Learning Objective 2-2: How do systems serve the different management groups in a business and how do systems that link the enterprise improve organizational performance? Learning Objective 2-3: Why are systems for collaboration and social business so important and what technologies do they use?, AACSB: Analytical thinking, Application of knowledge.)

2-15 Should all companies implement internal enterprise social networks? Why or why not?

Yes, companies should implement internal enterprise social networks, if for no other reason than they are cheaper and easier than other systems to operate and reduce expenses in other areas. The systems also improve productivity, in some cases dramatically. Companies should provide incentives if they must to encourage adoption of the new collaboration methods. Executives should be the first to use them which will speed their adoption. Executives must also tie these networks to financial results. Management must also encourage the necessary organizational cultural changes to help make the social networking tools a success. (Learning Objective 2-1: What are business processes? How are they related to information systems? Learning Objective 2-3: Why are systems for collaboration and social business so important and what technologies do they use?, AACSB: Analytical thinking, Application of knowledge.)

MyLab MIS

Go to the Assignments section of your MyLab MIS to complete these writing exercises.

2-17 Identify and describe the capabilities of enterprise social networking software. Describe how a firm could use each of these capabilities.

View rubrics in MyLab MIS.

2-18 Describe the systems used by various management groups within the firm in terms of the information they use, their outputs, and groups served.

View rubrics in MyLab MIS.

For an example illustrating the concepts found in this chapter, view the videos in MyLab MIS.